Rocky Flats Closure Legacy Regulatory Framework

State of Colorado, EPA and DOE recognize workers upon completion of Pu-contaminated soils at 903 Pad and Lip Area. The DOE, EPA, and State of Colorado had an outstanding working relationship and the same goal for Site cleanup. From left to right, Colorado Environmental Director Howard Roitman, EPA, Region 8 Administrator Robbie Roberts, and Rocky Flats Manager Frazer Lockhart.

REGULATORY FRAMEWORK

INTRODUCTION

During the early 1990s, several key issues and events shaped the environmental program at Rocky Flats. Following a federal raid alleging criminal violations of environmental laws, operations were curtailed in late 1989 to make various safety improvements as the government contemplated the resumption of nuclear weapons production. By 1992, and with the end of the Cold War, the need for Rocky Flats to provide nuclear weapons was eliminated and the post-production era had commenced. The Site's mission had shifted from one of weapons production to risk reduction, cleanup, and closure. Although an accelerated closure vision had not yet been fully developed, the future of the Site as an environmental cleanup project of enormous proportions was becoming clearer.

In January of 1991 the Interagency Agreement (IAG)[18] among the U.S. Department of Energy (DOE), the Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA) became the binding regulatory agreement governing environmental remedial action at Rocky Flats. However, beginning in 1993 representatives from DOE, EPA and CDPHE began discussions to create a new regulatory agreement for Rocky Flats, which clearly focused on cleanup to achieve ultimate Site closure. Their efforts were groundbreaking and resulted in an agreement which clearly supported and accelerated cleanup of the Site. The result of these discussions, The Rocky Flats Cleanup Agreement (RFCA)[3] signed in July of 1996, set in place the concepts and commitments for Site closure and the goal to align the project with community preferences. The development of the Rocky Flats regulatory framework, which includes the journey from the IAG to the successful implementation of RFCA, contains valuable lessons for DOE closure sites complex wide.

Each of the parties involved in the cleanup of the Rocky Flats Site – EPA, CDPHE, DOE, and K-H - had a vested interest in, and a commitment to, achieving closure in 2006.

Several key issues underline the success of the effort. Critical analysis of the IAG resulted in specific process and regulatory improvements, which became the basis for RFCA. RFCA realigned the roles and responsibilities for all parties of the agreement to refocus on accelerated Site closure and streamlined the processes necessary to accomplish remediation work. The relationships built and the focus on accelerated closure shared by both regulators and DOE created tremendous synergy for closure efforts. Aligning the regulatory framework with the Closure Project Baseline and the 2000 Closure Contract helped enable the accelerated closure of Rocky Flats to become a reality.

DISCUSSION

Compliance Agreement (1986)

On July 31, 1986, DOE, CDPHE, and EPA entered into a Compliance Agreement[19] which defined roles and established milestones for major environmental operations and response action investigations for the Site. The 1986 Compliance Agreement predated the IAG and established requirements for compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Through this action, the 1986 Compliance Agreement established a specific strategy, which allowed for management of high-priority past disposal areas and low-priority areas at the Site.

The 1986 Compliance Agreement also established roles and requirements for compliance with the Resource Conservation Recovery Act (RCRA) and Colorado Hazardous Waste Act (CHWA) through compliance with interim status requirements and submittal of required permit applications and closure plans. Through the 27 specific tasks identified in the five schedules included in the 1986 Compliance Agreement, DOE and Rockwell identified over 2,000 waste generation points and 178 solid waste management units (SWMUs) and RCRA/CHWA-regulated closure sites. The SWMU terminology is a RCRA designation consisting of inactive waste disposal sites, accidentally contaminated sites, and sites found to pose potential environmental concern due to past or current waste management practices. SWMUs were initially identified in 1985 in the Draft Comprehensive Environmental Assessment and Response Program (CEARP) Phase I: Installation Assessment.[20] The study consisted of record searches, open literature survey, inspections, and interviews with Site employees.

Implementation of the IAG (1991)

The 1986 Compliance Agreement did not reflect the requirements of the 1986 Superfund Amendments and Reauthorization Act, in particular the requirements governing federal facility National Priorities List (NPL) Sites pursuant to Section 120 of CERCLA. EPA's and CDPHE's priorities for investigation of the Site were also clarified based on increased knowledge of the Site gained from the ongoing investigation. The new priorities placed greater emphasis on Operable Units (OUs) that, based on information available, were known to pose the greatest risk to humans and the environment through actual or potential contact with wastes or contaminated soil, air, or water. EPA and CDPHE established criteria reflecting priorities for addressing both human health and

environmental issues. These factors necessitated revision of the 1986 Compliance Agreement beginning in 1990.

On January 22, 1991, DOE, EPA, and CDPHE signed Federal Facility Agreement and Consent Order CERCLA VIII-91-03, RCRA (3008[h]) VIII-91-07), and State of Colorado Docket #91-01-22-01, referred to as the Rocky Flats Interagency Agreement (IAG). The IAG regulated and provided for enforcement of DOE's investigation, planning, and conduct of response and corrective actions at the Site. It also established a comprehensive plan for integrating CERCLA and RCRA/CHWA requirements for these actions. The IAG divided the remedial activities into 16 OUs. In the IAG the SWMUs were renamed individual hazardous substance sites (IHSSs). IHSSs are specific locations within OUs where solid wastes, hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents may have been disposed or released into the environment within the Site at any time, irrespective of whether the location was intended for the management of these materials.

The 16 OUs were groupings of IHSSs into single management areas based on similarities of contaminants, geographical location, and possible interrelation of the IHSSs. EPA or CDPHE, or in some cases EPA and CDPHE jointly, were identified as the Lead Regulatory Agency (LRA) for each designated OU. The IAG also established a schedule including 221 milestones spread over ten years to guide and enforce activities related to these 16 OUs. The identified LRA had approval authority over DOE's remediation activities and compliance with the schedule and milestones for each OU.

Problems with the IAG

The process of negotiating linked, sequential milestone extensions on a one-by-one basis resulted in fewer resources being available for accomplishing cleanup work.

Problems with the IAG began almost immediately. Milestones in the IAG had been prepared based on detailed analysis of the work, and budgets were prepared that were coordinated with and supported the milestones. Two weeks after the IAG was signed the environmental restoration budget was cut by more than $20M, about 15 percent. This action directed from DOE's Environmental Management (DOE-EM) headquarters organization confused and outraged the regulators and created challenges to successfully meeting the milestones almost immediately.

Any milestone that was missed or expected to be missed required an individual request for extension and negotiation through a tiered process. This was true even when milestones for a specific OU were linked in serial order and dependent on completing one to begin the next. The process of negotiating milestone extensions on a one-by-one basis resulted in fewer resources being available for accomplishing cleanup work. These

"high transaction costs" could not be recovered, and difficult negotiations between Rocky Flats and the regulatory agencies led to entrenched positions on all sides regarding who was at fault, eroding what little good faith and trust existed at the time.

Compounding this difficulty was the requirement that DOE obtain approval of both CDPHE and EPA on documents submitted for approval, even though only one agency was the designated lead for a particular OU. In several instances, the agencies submitted inconsistent comments or opposing positions on resolution of a particular concern. Rocky Flats was required to resolve these differences to obtain approvals. This also contributed to poor working relationships and slowed progress of work.

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During 1992 and into 1993, it became apparent that unrealistic schedule and cost assumptions would make it impossible for Rocky Flats to fully comply with the IAG schedules. Although in 1991 and 1992 Rocky Flats was able to juggle resources and priorities to avoid missing milestones, a "bow wave" of work was building, and DOE began missing several milestones in March 1993. The agency projected that a series of future milestones were likely to be missed. In early 1994, DOE proposed an agreement to toll the stipulated penalties associated with these milestones for a certain period. According to the terms of the Tolling Agreement,[21] signed by the IAG Parties on July 7, 1994, DOE paid cash penalties to EPA and the State, and conducted Supplemental Environmental Projects, for a total value of $2.8 million. The agreement tolled stipulated penalties until January 31, 1995.

Although much of the IAG activity became focused on milestones, the fundamental purpose of the IAG was to reduce the risk to the public from current and past Site activities. Several OUs were proceeding to no-action decisions, but these addressed low or non-existent risks, with higher-risk OUs delayed pending cessation of production operations in the buildings. Meanwhile, the widely recognized priority for risk reduction associated with plutonium solutions and residues in aging systems and buildings, and deteriorating conditions, was not addressed at all by IAG-required environmental restoration activities. On a sitewide basis high priority nuclear hazards competed with relatively low risk OUs for available cleanup resources. Budget tension became a key concern and led to a persistent belief that the failure to meet IAG milestones was due to inadequate allocation of funding to do the work, this owing largely to the 1991 IAG budget cut. In reality, increases to the budget could not fix the underlying flaws inherent in the IAG process. This was evident in that unspent environmental remediation annual funding was sometimes carried over into successive years, unable to be spent in the year in which it was authorized. The DOE believed the IAG difficulties were a result of a lack

of project direction by the Site and a poorly defined process with the regulators.

Transition to RFCA

Because of the IAG concerns, Tolling Agreement, and issues surrounding the scope of work for response actions at the Site and given that the Rocky Flats nuclear weapon component production mission had ended, beginning in mid-1994 DOE, CDPHE, and EPA began negotiations to substantially modify or replace the IAG. Subsequently, in light of negotiations proceeding well toward a new agreement EPA and CDPHE agreed not to assess further stipulated penalties for violations of the IAG milestones occurring after January 31, 1995. DOE continued appropriate investigation and remediation work in the IAG OUs subject to LRA approval during this period.

The regulatory challenges were addressed by two fundamental shifts in thinking that occurred during the approximately 2-1/2 years of negotiations that resulted in RFCA. First and most importantly, it was agreed that resources must preferentially go to address the highest risks (e.g., environmental cleanup would in most cases await the special nuclear material cleanup). Second, a Site-wide or holistic approach to planning and execution of cleanup work would allow these risks to be addressed while progress towards environmental cleanup was achieved. A marked change in the mission for Rocky Flats as a weapons production facility to one of a cleanup Site provided an even greater emphasis on developing a regulatory agreement for the cleanup of Rocky Flats. K-H, the contractor awarded the project in July of 1995, brought specific expertise in environmental remediation. With these changes in place, the need for a regulatory agreement outlining the cleanup process became of paramount importance.

The successful negotiation and implementation of RFCA was a critical aspect of achieving accelerated Site closure. It provided the regulatory flexibility necessary to implement accelerated closure with a bias for action.

Broadening the Regulators Scope

Early in the negotiations for RFCA, the negotiation teams became preoccupied with defining the process to request and obtain adequate project funding from DOE Headquarters and Congress. Rocky Flats had been viewed as having reduced very little risk, despite the investment of millions in government funds in the early 1990's. During the timeframe of the negotiations, a bold decision on the part of Rocky Flats' senior leadership increased the scope of regulatory discussions to incorporate activities Site-wide. These discussions included the traditionally non-regulated activities associated with special nuclear materials. Once the focus of negotiations broadened to include regulated and non-regulated

Site-wide activities, the ability to reallocate funds to high priority cleanup efforts removed project funding language as a roadblock.

The negotiating team decided to also shift the milestone focus and drive the environmental restoration effort towards completion, reducing the spending on studies and research. This effort became known as a "Bias for Action" and fundamentally redirected efforts toward planning and executing cleanup work through accelerated actions rather than through the "traditional" paperwork-intensive CERCLA process. The application of risk-based prioritization techniques provided a level of predictability to the project planning. The team's goal was to prove that investing in Rocky Flats was money well spent in real risk reduction and closure efforts.

Once the focus of negotiations broadened to include regulated and non-regulated Site-wide activities, the ability to reallocate funds to high priority cleanup efforts removed project funding language as a roadblock.

Rocky Flats' decision to broaden the scope of regulatory discussions had another motive, to improve relationships with regulatory agencies. Information was provided on priorities, planning, and budgeting activities not previously regulated by either the EPA or CDPHE to provide an integrated approach to Site cleanup. This flow of information began to change the mistrust between agencies, building credibility for the Rocky Flats Field Office (RFFO) and its subsequent efforts for cleanup. In turn, the EPA and CDPHE allowed Rocky Flats to develop a more flexible approach to regulatory compliance to best support a cost-effective cleanup process. Rather than have the regulatory agencies mandate the specific sequence and timing for completion of project milestones, the goal was to provide the framework for cleanup activities based on an understanding of how non-regulated activities were being accomplished in the early 1990's.

Involvement of Colorado's Elected Officials

Well into the negotiation process for RFCA, Colorado's Governor assigned the Lt. Governor to represent the state in obtaining a cleanup agreement that would result in the accelerated closure of Rocky Flats. The Lt. Governor, a driving force in the development of the Rocky Mountain Arsenal Agreement (a Defense Superfund site also near Denver), provided focus for the development of the vision for closure of Rocky Flats. The RFCA negotiation team recognized the commitment to Site closure on the part of congressional stakeholders, including then State Senator Wayne Allard, and Congressmen David Skaggs and Mark Udall, along with local elected officials and the governor's office. The commitment and involvement of senior state and congressional officials created a sense of urgency in cleanup efforts. External pressure from key community members continued to drive accountability for DOE, EPA and CDPHE to not impede the overall cleanup and closure progress.

RFCA Vision

The RFCA negotiation parties realized that certain guiding assumptions about the future of Rocky Flats could be agreed upon as a means to achieve common understanding regarding the major objectives of the cleanup. The RFFO Manager suggested that the best way to satisfy this realization was to package these understandings as a "vision statement." In its simplest form, a vision is a concise statement that clearly expresses a common theme for complex activities. The Manager used President Kennedy's early 1960's declaration that the United States would put a man on the moon by 1970 as a prime example of a vision.

With the vision concept in mind, the RFCA parties solicited input from a broad range of stakeholders and used recommendations from previously completed community studies to construct the "Rocky Flats Vision." As finalized, it was agreed as follows:

> The Vision provides a broad statement for the future of Rocky Flats. All activities, agreements, planning documents and other legal agreements shall be guided by the vision and preserve, to the maximum extent possible, the full range of options and opportunities necessary to help accomplish and attain the vision (RFCA, Appendix 10).

The RFCA framework and regulatory approach to Site closure marked a unique and successful partnership between the DOE and state and federal regulatory agencies.

Senior policy and regulatory authorities signed the document outlining the Vision, including the Governor and Lt. Governor of Colorado, the EPA Deputy Administrator, the Executive Director of the CDPHE and the Acting Regional Administrator for EPA Region 8. The established Rocky Flats vision was:

- To achieve accelerated cleanup and closure of Rocky Flats in a safe, environmentally protective manner and in compliance with applicable state and federal environmental laws;
- To ensure that Rocky Flats does not pose an unacceptable risk to the citizens of Colorado or to the Site's workers from either contamination or an accident; and,
- To work toward the disposition of contamination, wastes, buildings, facilities and infrastructure from Rocky Flats consistent with community preferences and national goals (RFCA, Appendix 9).

The Vision included goals supporting Site closure and addressed the major assumptions for cleanup; the reduction of risks posed by plutonium, other

special nuclear material and transuranic wastes was the highest priority. Other areas addressed are listed in the section below as objectives for RFCA. The Vision also outlined the need for public involvement and local government consultation regarding Site activities. It stated that the Site would be cleaned up "to the extent feasible" within current technology and budgetary resources or legal requirements, but would not be cleaned up to background levels. To paraphrase the Governor's words, it was a less than perfect cleanup, but it was the right agreement.

Implementation of RFCA (1996)

On July 19, 1996, DOE, EPA, and CDPHE signed Federal Facility Agreement and Consent Order CERCLA VIII-96-21, RCRA (3008[h]) VIII-96-01, and State of Colorado Docket #96-07-19-01, referred to as RFCA. RFCA terminated and replaced the IAG and has since served as the regulatory agreement to accomplish the required cleanup of radioactive and other hazardous substance contamination at the Site.

Each objective included a description of the anticipated near-term and intermediate site conditions for the covered topic.

As discussed, RFCA expanded the cleanup scope to include disposition of all buildings, which were not covered in the IAG OUs, and changed the regulatory approach in several significant respects. It incorporated an unenforceable Preamble recitation of the objectives for eight topics that influenced cleanup decision-making that were developed in consultation with the community and local governments, resulting in the Vision for the Site. In addition, each objective included a description of the anticipated near-term and intermediate site conditions for the covered topic. Per the RFCA Preamble, Section B paragraph 9g, the Intermediate Site Condition is:

> the period of time during which all weapons useable fissile material and transuranic wastes will be removed from RFETS [the Site]. By the end of this period, none of these materials, nor the buildings that contained them, will remain. Also by the end of this period, all low-level, low-level mixed, hazardous, and solid wastes will have been shipped off-site, disposed, or stored in a retrievable and monitored manner to protect public health and the environment. Any remaining cleanup will be completed. Activities occurring in this period are anticipated to be completed about 12 to 20-25 years from now.

RFCA Objectives and Status

The following descriptions of the summary objectives and intermediate site conditions are taken from Section B of the RFCA Preamble. The

status as of early 2006 of each topic in relation to its anticipated intermediate site condition is also described.

1. *Disposition of Weapons Useable Fissile Materials and Transuranic Wastes*

   Summary: DOE will stabilize, consolidate, and temporarily store weapons useable fissile materials and transuranic wastes on-site for removal; ultimate removal of weapons useable fissile material is targeted for no later than 2015.

   Intermediate Site Condition: Weapons useable fissile materials are targeted for removal from RFETS by 2015. By the end of the Intermediate Site Condition, all transuranic waste will have been removed from RFETS.

   Status: All weapons useable fissile material was removed by 2003 and transuranic waste removal for disposal at WIPP was completed in 2005.

2. *On-Site and Off-Site Waste Management*

   Summary: Waste management activities for low-level, low-level mixed, hazardous, and solid wastes will include a combination of on-site treatment, storage in a retrievable and monitored manner, disposal, and off-site removal. Low-level and low-level mixed wastes generated during cleanup will be stored in a safe, monitored and retrievable manner for near-term shipment off Site, long-term storage with subsequent shipment off Site and/or long-term storage with subsequent disposal on-site of the remaining wastes.

   RFCA left open the option for disposal of low-level wastes on-Site.

   Intermediate Site Condition: Waste materials that are to be removed will have been shipped off Site. Any necessary follow-up cleanup related to the former storage sites will have been completed. By the end of this period, decisions will have been made regarding stored material for its continued storage, treatment or disposal.

   Status: All waste materials generated during the Project were shipped off site for disposition. Cleanup for closure of former storage sites was completed in October 2005.

3. Water Quality

Summary: At the completion of cleanup activities, all surface water on Site and all surface and ground water leaving RFETS will be of acceptable quality for all uses.

All surface and ground water leaving RFETS will be of acceptable quality for all uses.

Intermediate Site Condition: By the time cleanup activities are completed, all on-site surface water and all surface water and groundwater leaving RFETS will be of acceptable quality for all uses, including domestic water supply. Ground water quality in the Outer Buffer Zone and off Site will support all uses. On-site ground water will not be used for any purpose unrelated to RFETS cleanup activities. Reliable monitoring and controls to protect water quality during storage of plutonium and other special nuclear material and wastes, and during storm events, will continue. To assure the above described water quality, long-term operation and maintenance of waste management and cleanup facilities will continue.

Status: Surface water from the Rocky Flats industrial area originates from rainwater surface runoff and underground seeps. It is collected and naturally attenuated through a series of ponds. After leaving the "terminal ponds" (the last in the series), surface water exits the Site boundary.

All surface water and groundwater leaving the Site boundaries currently meet the RFCA objectives based on the results of routine, continuous surface water monitoring for radionuclides and historical, non-routine monitoring of surface water and groundwater for a limited number of other analytes of interest. Surface water downstream of the Woman Creek and Walnut Creek terminal ponds currently meets this objective and Colorado water quality standards based on the results of routine, continuous surface water monitoring for radionuclides and predischarge monitoring of the terminal ponds for radionuclides and a limited number of other analytes of interest.

Upstream of the terminal ponds, surface water sample results do not always meet Colorado surface water quality standards for some analytes at some on-site monitoring locations. However, the objective should eventually be met based on remedial actions completed during closure. Completed accelerated actions have removed significant sources of surface water contamination. The Solar Ponds, East Trenches, and Mound Plume barriers and passive treatment systems, and the Present Landfill seep collection and passive aeration treatment system continue to reduce surface

water contaminant loading from residual subsurface soil and groundwater contamination.

4. *Cleanup Guidelines*

Summary: Cleanup activities will be conducted in a manner that will:

- reduce risk;
- be cost-effective;
- protect public health;
- protect reasonably foreseeable land and water uses;
- prevent adverse impacts to ecological resources, surface water, and ground water; and
- be consistent with a streamlined regulatory approach.

Cleanup Guidelines supported a streamlined regulatory approach.

Intermediate Site Condition: After off-site disposition of plutonium, other special nuclear material and transuranic wastes, the cleanup of the buildings that contained these materials, and of any residual waste from their shipment or storage, will be completed. Appropriate monitoring, operation and maintenance of any remaining treatment, storage, or disposal facilities will continue.

Status: Building cleanup and waste disposition is complete. Several areas containing wastes buried more than 30 years ago, two historical landfills with engineered covers meeting landfill closure criteria, and some infrastructure and building slabs/basement walls below three feet from the surface remain. Infrastructure and building structures that have measurable residual contamination are six feet or more below the ground surface, with contamination fixed in place. Appropriate monitoring and operation and maintenance of the site has been identified and implemented.

5. *Land Use*

Summary: Cleanup decisions and activities are based on open space and limited industrial uses; the particular land use recommendations of the Future Site Use Working Group (FSUWG) are not precluded; specific future land uses and post-cleanup designations will be developed in consultation with local elected officials, local government managers, Rocky Flats Local

Impacts Initiative (RFLII), Citizen's Advisory Board (CAB), other groups and citizens. The Parties recognize the legal authority of local government to regulate future land use at and near RFETS.

Cleanup decisions and activities are based on open space and limited industrial uses;

Intermediate Site Condition: At the beginning of this period, access to the Buffer Zone will continue to be controlled consistent with the safety and security needs of plutonium, other special nuclear material, and transuranic wastes. After weapons useable fissile material and transuranic wastes are removed, DOE will work with local elected officials, local government managers, RFLII, CAB, other groups and citizens to determine the optimal use of the Buffer Zone. Any access controls and/or institutional controls that are necessary or appropriate for public health, environmental protection, ongoing monitoring and operation and maintenance activities, will continue.

Status: The future land use for RFETS is a National Wildlife Refuge, with a portion of the Site retained by DOE for long-term surveillance and maintenance activities.

6. *Environmental Monitoring*

Summary: Environmental monitoring will be maintained for as long as necessary.

Intermediate Site Condition: After plutonium, other special nuclear material and transuranic wastes are gone, the monitoring system will continue to address remaining waste management facilities and water quality needs. This monitoring system will remain in place for as long as necessary for the protection of public health, environment, and safety.

Status: Environmental monitoring is conducted pursuant to the Integrated Monitoring Plan (IMP) established in accordance with RFCA. The IMP was first approved in 1997 and is reviewed annually and updated as needed (through Fiscal Year 2003 reviews and any needed updates were performed quarterly).

7. *Building Disposition*

Summary: All contaminated buildings will be decontaminated as required for future use or demolition; unneeded buildings will be demolished.

Intermediate Site Condition: By the end of this period, the remaining buildings that were used for plutonium, other special

nuclear material, and transuranic waste storage will have been demolished. Also by the end of this period, decisions will have been made regarding material that has been stored in a retrievable and monitored manner for its continued treatment, storage or disposal.

Status: All Site buildings were decommissioned, decontaminated as necessary, and demolished except for the east and west vehicle inspection sheds that DOE retains for future use.

8. *Mortgage Reduction*

Summary: Weapons useable fissile material and transuranic wastes will be safely consolidated into the smallest number of buildings to reduce operating costs and shrink the security perimeter; contaminated and non-contaminated buildings will be decommissioned and either demolished or turned over for other non-DOE uses.

Intermediate Site Condition: During this period, the secured area will be further reduced and eventually removed. Operating costs will be minimized. By the end of this period, weapons useable fissile material and transuranic wastes will have been removed from RFETS and the related buildings will have been decontaminated and either demolished or converted to non-DOE uses. Closure or conversion to non-DOE use of non-contaminated buildings will be completed by the end of this period. Also by the end of this period, in consultation with local officials, the Community Reuse Organization, and interested members of the public, existing RFETS infrastructure will be essentially eliminated, except for monitoring, and operation and maintenance of any remaining waste storage or disposal facilities, or to support RFETS reuse activities, to the extent that it is paid for by the users.

Status: See the status descriptions for On-Site and Off-Site Waste Management, Land Use, and Building Disposition presented earlier.

Implementation of a Streamlined Regulatory Approach

The streamlined regulatory approach summarized in Objective 4, Cleanup Guidelines, was implemented in several ways. Two new OUs were established: the Industrial Area (IA) OU with CDPHE as the LRA, and the Buffer Zone (BZ) OU with EPA as the LRA. The 16 IAG OUs were realigned and consolidated to fit within these OUs, as was LRA planning,

The 16 IAG OUs were realigned and consolidated to fit within these OUs, as was LRA planning, investigation, and decision document review and approval authorities.

investigation, and decision document review and approval authorities. RFCA also coordinated all of DOE's cleanup obligations under CERCLA, RCRA, and CHWA in a single agreement to streamline compliance with these three statutes.

A consultative, accelerated action approach for the IHSSs was also delineated in RFCA. RFCA paragraph 79 provides, in part, the following:

> To expedite remedial work and maximize early risk reduction at the Site, the Parties intend to make extensive use of accelerated actions to remove, stabilize, and/or contain IHSSs. Focusing on IHSSs rather than OUs will allow most remedial work to be reviewed and conducted through one of the accelerated review and approval processes described in Part 9, rather than the RI/FS process….

The RFCA approach resulted in development of a credible planning and funding baseline from which enforceable RFCA regulatory milestones were established and almost always met.

The RFCA approach resulted in development of a credible planning and funding baseline from which enforceable RFCA regulatory milestones were established and almost always met. The RFCA Quarterly Reports provide a report of the annual milestone setting process and the "score cards" related to milestone achievement. Implementation of RFCA resulted in reducing the projected time and funding needed to achieve required cleanup. Eventually, relatively level annual "closure project" congressional appropriations for the Site were approved.

The Action Level Concept

In addition, to aid in evaluating accelerated action determinations for IHSSs, action levels (ALs) were established and used as described in RFCA paragraph 75:

> The Action Levels and Standards Framework, Attachment 5, establishes action levels for ground water and soil as well as action levels and cleanup standards for surface water. Attachment 5 also establishes a deadline for setting additional action levels for soil and interim cleanup levels for soil. Action levels and standards are requirements of this Agreement, but exceedance of an Action Level is not subject to penalties. The Framework action levels describe numeric levels of contamination in ground water, surface water, and soils which, when exceeded, trigger an evaluation, remedial action and/or management action. The Framework surface water standards are in-stream contaminant levels that, contingent on action by the Colorado Water Quality Control Commission to align stream classifications and standards with the Action Levels and Standards Framework, the regulators will require DOE to meet for activities undertaken prior to the final

> CAD/ROD, and which constitute the Parties' current joint recommendation for the CAD/ROD….

RFCA Attachment 5, Rocky Flats Action Levels and Standards Framework for Surface Water, Ground Water and Soils (ALF), has been modified several times.[22] ALs for soil are based on risk to the wildlife refuge worker (WRW) human receptors and ALs for groundwater are based on drinking water standards for groundwater: thus, an accelerated action evaluation for these media is based on impacts to human health. ALs for surface water are based on Colorado Water Quality Standards, which are protective of human health and ecological resources. Once an evaluation was triggered by the exceedance of soil or groundwater ALs, the threat to ecological receptors was considered in determining whether to take an accelerated action. An ERA, for purposes of the final remedy decision, is part of the CRA.

Basis for Action Levels

RFCA ALs were numeric levels that, when exceeded, triggered an action determination evaluation in accordance with RFCA Attachment 5 and an appropriate accelerated response action

RFCA ALs were numeric levels that, when exceeded, triggered an action determination evaluation in accordance with RFCA Attachment 5 and an appropriate accelerated response action (RFCA Attachment 5, Section 1.1). In general, RFCA ALs were based on the following:

Soil ALs were calculated to be protective of a wildlife refuge worker based on 1) a lifetime excess cancer risk of 1×10^{-5} and 2) a hazard index of 1. The more conservative of the two values was used as the soil AL (RFCA Attachment 5, Sections 4.0 and 5.0).

Groundwater ALs were based on surface water protection (RFCA Attachment 5, Section 3.1) by applying maximum contaminant levels (MCLs). Where an MCL for a particular contaminant was missing, the residential groundwater ingestion-based PRG value applied (RFCA Attachment 5, Section 3.2).

Surface water ALs (RFCA Attachment 5, Section 2.2) were based on Colorado surface water use classifications for the Site: water supply; aquatic life – warm 2; recreation 2; and agricultural. Numeric values were derived from the following:

- For metals, the site-specific standards or the basic standards applied. If the basic and site-specific standards differed for a particular metal, the site-specific standard applied.
- For inorganics, the site-specific standards or the basic standards applied. If the basic or site-specific standards differed for a particular inorganic, the site-specific standard applied.

- For organic chemicals, the more stringent of the basic standards or the site-specific standard applied.
- For radionuclides, the basic standards applied.

The surface water standards ALF was designed to protect are found in WQCC Regulation No. 31: Basic Standards and Methodologies for Surface Water (5 CCR 1002-31) (basic standards) and the site-specific water quality standards in the WQCC Regulation No. 38 (5 CCR 1002-38) (site-specific standards). If a numeric value existed for multiple use classifications, then the lowest numeric value was selected as the AL.

RFCA Accelerated Actions and Action Levels

As discussed above, the need for a RFCA accelerated action was based on an action level (AL) evaluation. Characterization results were compared to RFCA soil ALs specified in ALF to evaluate whether the levels and extent of contamination triggered an accelerated action. Because of concerns by some in the community over the exposure parameters used to establish the radionuclide soil action levels (RSALs) in 1996, these levels were considered interim. The interim RSAL for plutonium was set at 651 pCi/g, corresponding to a $1x10^{-4}$ excess cancer risk for an open space user. Following an extensive public process, the RFCA Parties conducted a review to determine whether the interim RSALs should be modified. During the period of review, from 1996 to 2004, the future land use as a National Wildlife Refuge became law. Thus, the RSAL review expanded to reconsider soil ALs for all analytes, using the Wildlife Refuge Worker (WRW) exposure scenario. As a result of the review, soil ALs and the evaluation and implementing criteria for RFCA accelerated actions required under ALF were modified in 2003 based upon levels that were calculated to result in a lifetime excess cancer risk of $1x10^{-5}$ to the WRW. However, while this risk level equated with a surface soil concentration of 116 picocuries per gram (pCi/g) for plutonium-239/240, the RSAL for plutonium was established at a lower level of 50 pCi/g, which equates to about $3x10^{-6}$ risk. This lower RSAL was designed to help ensure the total risk from all radionuclides would be below $1x10^{-5}$ and to reduce plutonium concentrations that could migrate through the soil erosion pathway. The lower plutonium RSAL also met acceptable risk and annual radiation dose Applicable or Relevant and Appropriate Requirements (ARARs) for an unrestricted user scenario. For further discussion on the public process leading up to the modification of the RSALs see the *Stakeholder Involvement* section.

Because of concerns by some in the community over the exposure parameters used to establish the radionuclide soil action levels (RSALs) in 1996, these levels were left open for subsequent reconsideration.

In addition, the modified ALF implementing criteria required soils within three feet of the surface contaminated above the plutonium RSAL to be removed to below the RSAL. This also addressed the soil erosion

pathway concerns. Thus, in the disposition of all IHSSs where plutonium 239/240 was the soil contaminant, 50 pCi/g in surface soil was the accelerated action trigger for soil removal.

Implementation of a No Further Accelerated Action Decision

If no accelerated action was required for an IHSS, the data were summarized in a Data Summary Report and the IHSS or IHSS Group was recommended for No Further Accelerated Action (NFAA). The Data Summary Report summarized, in tabular and graphical format, the data that justify the NFAA for the IHSS Group. Information provided in the Data Summary Report was used in the update to the Historical Release Report (HRR)[23] pertaining to the IHSS to further document the basis for NFAAs. If an accelerated action was taken, the confirmation sampling results were used to demonstrate that NFAA requirements were met for the IHSS.

Implementation of an Accelerated Action Decision

If an accelerated action was determined to be required, it was proposed in a draft decision document for LRA approval. Three types of RFCA accelerated actions have been conducted in accordance with the following RFCA decision documents:

- Proposed Action Memorandums (PAMs) implemented when remedy selection was straightforward, and remedial activities were estimated to take less than 6 months from commencement of the physical work to completion;
- Interim Measure/Interim Remedial Actions (IM/IRAs) implemented when a formal evaluation of remedial options was necessary or remedial activities were estimated to take more than 6 months from commencement of physical work to completion; and
- RFCA Standard Operating Protocols (RSOPs)[24,25] implemented for routine accelerated actions that are substantially similar in nature, for which standardized procedures were developed.

RFCA also provides that a RCRA/CHWA-permitted or interim status unit may be closed under a separate closure plan, or under a RFCA decision document.

At the completion of the accelerated action, regardless of the type of decision document implemented, a Closeout Report was prepared and submitted to the LRA for approval. The purpose of the Closeout Report was to document accelerated action activities for an IHSS Group. The Closeout Report summarized characterization data, the action taken, demarcation of excavation, confirmation sampling results, remediation

waste volume and disposition, any changes in remediation approach and the rationale behind the change, stewardship recommendations, and the demarcation of residual contamination left in place.

Building Demolition: Development of the Decommissioning Program Plan (DPP)[26]

Development of the DPP was one of the early tests of RFCA and the consultative process. RFFO worked with CDPHE to develop this policy document and ultimately succeeded in establishing the framework for collaborative problem solving with the regulators.

The DPP refined the definitions of what work did and did not require regulatory approval, set out the parameters and the approval process for decommissioning decision documents, provided a means to obtain quick approval of work, and removed hundreds of uncontaminated buildings from the decision document approval process.

The DPP was a Sitewide decision document contemplated by RFCA, whose purpose is to establish an overall regulatory process for decommissioning all of the buildings at Rocky Flats. RFCA provided little guidance on how this process would work, and somewhat ambiguous definitions of what kinds of decommissioning work were to be regulated under RFCA. This made the development of the DPP a challenging endeavor, especially since building decommissioning projects were the first large, complex closure activities that would be done under the RFCA regulatory umbrella.

The DPP resolved a number of issues that were critical to striking a balance between adequate regulatory oversight and accelerated Site closure. The DPP refined the definitions of what work did and did not require regulatory approval, set out the parameters and the approval process for decommissioning decision documents, provided a means to obtain quick approval of work, and removed hundreds of uncontaminated buildings from the decision document approval process. The DPP also documented the expectations that the RFCA parties have for one another in their working relationships. The success of the decommissioning program is due, in part, to the working relationships that were established in the difficult development and negotiation of the DPP.

The Building Demolition Process Under RFCA

In accordance with RFCA, decommissioning activities were conducted as CERCLA removal actions. By October 2005, all buildings were removed except for the east and west vehicle inspection sheds retained for DOE uses.

Each Site facility was preliminarily screened as a Type 1, Type 2, or Type 3 facility (see below) based on the levels of contamination known or believed to exist within the facility. The EPA and CDPHE approved Decontamination and Decommissioning (D&D) Characterization

Protocol[27] and the Reconnaissance Level Characterization Plan, Appendix D of the D&D Characterization Protocol, guided the identification of hazards necessary for proper building typing. Generally, a building-specific Reconnaissance Level Characterization Report (RLCR)[28] was prepared that provided the basis for the building type for LRA concurrence. Prior to demolition of Type 2 or Type 3 buildings after decontamination, a Pre-Demolition Survey was conducted in accordance with the LRA approved Pre-Demolition Survey Plan. Then, a Pre-Demolition Survey Report (PDSR)[29] was prepared for LRA review and approval. Demolition was then conducted after the LRA approved the PDSR. The buildings were identified as Type 1, 2, or 3 as follows:

- Type 1 - Buildings Free of Contamination. "Free of contamination" means that the following conditions were met:
  - Hazardous wastes, if any, were removed and any RCRA units were properly closed in accordance with regulatory requirements for unit closure prior to demolition;
  - Routine surveys for radiological contamination showed the building was not contaminated;
  - Surveys, if required, for hazardous substance contamination showed the building was not contaminated; and
  - If any hazardous substances, including polychlorinated biphenyls (PCBs) in light ballasts or friable asbestos were present, they were an integral part of the building's structural lighting, heating, electrical, insulation, or decorative material.

RSOPs were used for repetitive decommissioning activities regardless of the facility type.

- Type 2 - Buildings without Significant Contamination or Hazards, but in Need of Decontamination. Type 2 buildings contained some radiological contamination or hazardous substance contamination. The extent of the contamination was such that routine methods of decontamination sufficed and only a moderate potential existed for environmental releases during decommissioning. Most buildings where industrial operations occurred that used hazardous substances and/or radioactive materials fell into this category.

- Type 3 - Buildings with Significant Contamination and/or Hazards. Type 3 buildings contained extensive radiological contamination, usually as a result of plutonium processing operations or accidents. Contamination existed in gloveboxes, ventilation systems, and/or the building structure. Those buildings that were used for plutonium component production along with the major support buildings for such production included Buildings 371/374, 771/774, 707, 776/777, and 779.

For Type 2 and Type 3 buildings, four types of RFCA decision documents, which were approved by the LRA, were used for decommissioning activities:

- PAMs, written when activities took less than 6 months to complete;
- IM/IRAs, written when activities took more than 6 months to complete;
- Decommissioning Operations Plans (DOPs), used for Type 3 buildings; and
- RSOPs, used for repetitive decommissioning activities regardless of the facility type.

Decommissioning of Type 2 buildings was typically conducted under the RSOP for Recycling Concrete,[30] the RSOP for Facility Disposition,[31] and the RSOP for Facility Component Removal, Size Reduction, and Decontamination Activities,[32] although several buildings were decommissioned under an IM/IRA or PAM. Type 3 buildings were decommissioned pursuant to DOPs.

Closeout Reports document the completed building decommissioning activity. The Closeout Reports for Type 2 and 3 buildings were submitted for LRA approval. Closeout Reports for Type 1 buildings were provided to the LRA for information.

Contractor Role

The use of the consultative process for decision making enabled early, open dialogue with the regulators on cleanup plans, building trust and taking paper processes off the critical path.

Although not a signatory to RFCA, K-H played an essential role in shaping the relationship with Rocky Flats regulators and in implementing the consultative process. The RFCA parties and K-H each designated a project coordinator to act as the agency or company representative during frequent project meetings. The project coordinators also had the responsibility of coordinating RFCA issues throughout their own organizations resulting in overall alignment of regulatory and Site priorities.

The broad objectives of the 2000 Closure Contract[33] and RFCA were substantially aligned. However, the day-to-day and week-to-week implementation of projects and conduct of work presented some challenges. Even though agency goals were aligned, authorities and priorities were often in conflict at the working level of K-H, RFFO, CDPHE and EPA. K-H was very effective at demonstrating the need to place greater priority on putting the workforce to work on planned and approved projects. With workforce issues so dynamic and workplace conditions so uncertain, K-H needed greater flexibility in its planning and execution of work if the closure project was going to be successful. The

RFFO and regulators provided greater flexibility to the contractor to make decisions. In exchange, K-H provided nearly unlimited regulatory access to its planning documents, internal meetings and decision-making processes.

Aligning Regulatory Efforts to the Closure Project Baseline

The effective implementation of RFCA required continual focus on aligning the regulatory approach with the overall closure project mission. The path of accelerated closure was defined by the project's lifecycle baseline, with detailed work activities and project milestones identified. The DOE 2000 Closure Contract with K-H (a fixed term, incentive fee-based closure contract) requires compliance with RFCA.

Milestone Structure

Under RFCA, enforceable milestones[34] were established for a 3-year rolling period with no more than 12 being established per fiscal year. Milestones were designed to:

1. Provide accountability for key commitments;
2. Ensure adequate progress at the Site;
3. Provide adequate scope drivers; and
4. Facilitate budget planning and execution.

Also, each year the parties are required to review the previous year's milestones and non-enforceable target activities and either re-establish or revise them. Failure to meet enforceable milestones can result in the regulators imposing stipulated penalties of up to $20,000 per week.

Under RFCA, enforceable milestones were established for a 3-year rolling period with no more than 12 being established per fiscal year.

In 2000 RFFO proposed to CDPHE and EPA the concept of measuring regulatory milestone performance using earned value derived from the PWA (Predetermined Work Activities) list which was required per the Closure Contract. The underlying premise of the proposal was to maximize the flexibility for the Site to plan and implement closure project work (and thereby minimize changes in work priorities to satisfy regulatory milestone commitments) in exchange for expanded regulatory oversight over the closure project as a whole. The regulatory earned value framework was approved and implemented beginning with Fiscal Year 2001 work scope. The framework utilized the 3-year rolling milestone provision in RFCA. Simply put, the framework called for the Site to achieve at least 50% of the scheduled earned value derived from the PWA list in each RFCA-regulated category (decontamination & decommissioning, low level waste shipments, transuranic waste (TRU) shipments, and environmental remediation) in each year. In addition to the earned value milestones, outyear milestones (three years out and

beyond) were established to anchor certain decontamination and decommissioning and environmental remediation activities in the future. The approach was so successful in advancing regulator awareness and understanding of project progress, that the regulators eliminated their review of the milestones in 2004 and beyond.

Clarity on the End State

When RFCA was signed in 1996, a path was set for cleanup and closure of Rocky Flats. The preamble to RFCA set objectives including the removal of all SNM (Special Nuclear Material) and TRU waste by 2015, with final cleanup being completed between 2008 - 2021. Future land use was described as open space in the Buffer Zone and open space or industrial uses in the existing Industrial Area.

During 1996 the Assistant Secretary for DOE's Environmental Management, looked within the DOE-EM program for opportunities for Sites to achieve accelerated closure. Rocky Flats was viewed as a Site capable of achieving closure and was chosen as the second of two accelerated closure projects (the first being the Fernald Site in Ohio). This decision was reinforced several years later with the signing of the accelerated closure contract between the DOE and K-H, which targeted Site closure in 2006.

What remained relatively undefined was the period beyond 2006 – post closure. The Future Site Use Working Group, comprised of representatives from local governments, citizens, EPA, CDPHE and DOE issued a report and recommendations in 1995.[5] This included a recommendation for open space use in the Buffer Zone for environmental research, natural and cultural resource management, industrial use in the Industrial Area to support development and implementation of remediation technologies, and a long-term goal of complete radiological cleanup to background. In 1996, RFCA adopted the open space and light industrial recommendations, although specific uses within that designation were not elaborated. Myriad community interests existed regarding the specific implementation of open space, each with implications regarding cleanup standards and remedy protectiveness. Open space uses could range from golf courses, to picnic grounds, to undisturbed, inaccessible prairie. This range of interests could have affected the ability to define cleanup standards and appropriate remedies.

Myriad community interests existed regarding the specific implementation of open space, each affecting the ability to define cleanup standards and appropriate remedies.

During the 1999 - 2001 timeframe congressional members sought to bring greater clarity to the end use and created a bipartisan effort to define future use of the Site. In December 2001, the Rocky Flats National Wildlife Refuge Act, co-sponsored by Sen. Allard and Rep. Udall, was enacted into

law. The Act provided clarity to the regulators, the community and the DOE on a specific application of the open space designation identified in the RFCA. With this greater refinement of post-closure land use, realistic land use scenarios were developed and sophisticated modeling employed to aid in setting cleanup standards and in evaluating remedy alternatives.

Provisions of the Rocky Flats National Wildlife Refuge Act

As a result of most of the Site land remaining relatively undisturbed since 1951, preservation and diversity of plants and animals at the Site is unique in this area of the Front Range. The Site provides habitat for many wildlife species, including the Preble's meadow jumping mouse, which is federally protected as a threatened species, and several rare plant communities.

The Rocky Flats National Wildlife Refuge Act of 2001 (Public Law 107-107, Subtitle F, 16 U.S.C. 668dd) (Refuge Act) provides that future ownership and management of the Site shall be retained by the United States. Under the Refuge Act, upon completion of cleanup and closure of the Site, the Secretary of Energy shall transfer administrative jurisdiction over certain Site lands to the Secretary of the Interior for the purposes of establishing the Rocky Flats National Wildlife Refuge (Refuge). The U.S. Fish and Wildlife Service (USFWS), is the Department of Interior agency responsible for Wildlife Refuge management. Under the Refuge Act, the Secretary of Energy will retain administrative jurisdiction over those engineered structures used for carrying out a response action and any lands or facilities related to a response action or other actions to be carried out by the Secretary of Energy at the Site. The final delineation of lands to be transferred to the Secretary of the Interior will be identified in the CAD/ROD.

A Final Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS)[35] related to the establishment of the Refuge was prepared by USFWS and published in 2004, in consultation with the public and the local communities as required by the Refuge Act. The Refuge Act also requires the Secretary of the Interior to provide a report to Congress on the impact of any existing property rights, including any mineral rights, on management of the Refuge, and identify strategies for resolving and mitigating the impacts. The CCP/EIS contains extensive information regarding the attributes and the plant and animal resources of the approximately 6,240-acre property in relation to its designation as a National Wildlife Refuge.

Environmental Covenants

On July 12, 2001, Colorado Senate Bill 01-145 became effective. This legislation creates authority for the Colorado Department of Public Health and the Environment to enter into enforceable environmental covenants for properties on which residual contamination exists following cleanup. Covenants could be required in cases where residual contamination precluded some uses of the land, or where engineered structures remained which required maintenance or protection from damage to remain effective. The covenants are enforceable, and run with the land; that is, they are enforceable against subsequent property owners.

As part of the negotiations on the post-closure agreement to supersede RFCA, CDPHE made it known that they wanted DOE to grant an environmental covenant for those portions of Rocky Flats that would be subject to institutional controls following closure. Although DOE had some reservations regarding the covenant, principally that it was unnecessary given that Federal ownership had been prescribed in the Refuge Act, it agreed to comply with the State's covenant law. In return, the State agreed not to require a post-closure permit for closed RCRA units that were covered under a covenant.

DOE agreed to comply with the State's covenant law. In return, the State agreed not to require a post-closure permit for closed RCRA units that were covered under a covenant.

The first area of Rocky Flats to be covered by an environmental covenant was the Present Landfill, which had been closed as a RCRA hazardous waste unit (the Present Landfill had accepted small quantities of hazardous waste during its operating life). The RFCA Parties anticipate that a more comprehensive environmental covenant, covering additional areas of the site, would be granted by DOE concurrent with the signing of the final Record of Decision for Rocky Flats.

Post-Closure Regulatory Framework

The post-closure regulatory framework at Rocky Flats will be governed by three major documents: the Corrective Action Decision/Record of Decision (CAD/ROD), the post-closure agreement, and the final site environmental covenant. The CAD/ROD is expected to select the final site remedy from among the three alternatives being considered in the Feasibility Study. These include:

1. no action (but including prescribed monitoring and maintenance actions);
2. the addition of institutional controls to alternative 1; and,
3. the addition of soil removal in the 903 Lip Area to further reduce residual risk to the wildlife refuge worker.

These alternatives will be described in detail in the Proposed Plan for Rocky Flats, due to be released for public comment in June 2006. The CAD/ROD will describe the selected alternative in some detail, including the actions to be taken by DOE, and the rationale for selecting the alternative. The DOE, CDPHE, and EPA anticipate signing the CAD/ROD in the fall of 2006.

The original Rocky Flats Cleanup Agreement continues to govern Rocky Flats activities, and will do so until it is replaced by a post-closure agreement. The post-closure agreement will implement the requirements of the CAD/ROD, and will likely prescribe DOE's obligations relating to environmental monitoring, site maintenance, reporting, information management, and actions to be taken if adverse environmental conditions are discovered in the future. The RFCA Parties (DOE, CDPHE, and EPA) began discussing the framework for the post-closure agreement in 2004. Although not yet signed (and in fact, portions of the post-closure agreement cannot be finalized until the requirements of the CAD/ROD are known), the draft agreement as of early 2006 contained the following elements:

- a reliance on both CERCLA and RCRA/Colorado Hazardous Waste Act as the underlying authorities for the agreement;
- a commitment to continue the consultative process begun under RFCA;
- clear designation of the LRA, likely to be CDPHE for most, if not all, site activities; and,
- the use of enforceable attachments to specify requirements, and non-enforceable appendices to provide information relevant to the execution of the agreement.

The RFCA Parties anticipate that the post-closure agreement will be much smaller than RFCA, the body of which (excluding attachments and appendices) is 85 pages long. The post-closure agreement is expected to be signed concurrent with the CAD/ROD.

The final site covenant will contain the institutional controls that will be included in the CAD/ROD. The geographic extent of the covenant has not been determined, but may include all those lands retained by DOE for remedy-related purposes. As mentioned earlier, the final environmental covenant for Rocky Flats will likely be granted concurrent with the signing of the CAD/ROD.

KEY SUCCESS FACTORS

1. It was essential that each of the principal parties involved in the cleanup of the Rocky Flats Site (EPA, CDPHE, DOE and K-H) had a vested interest in and commitment to achieving closure in 2006. One key to establishing this at Rocky Flats was the site Vision that was incorporated into RFCA. The Vision gave senior managers from all parties the chance to agree on top-level goals, while allowing staff to resolve issues within a general framework.

2. The ongoing clarification of the Rocky Flats end state, from the work done by citizens' groups in the early 1990's to the passage of the Refuge Act in 2001, was very helpful on a number of fronts, from defining cleanup levels to ensuring that key stakeholders were comfortable with the project's end results.[36]

3. The evolution of the regulatory framework for Rocky Flats from the IAG to the successful negotiation and implementation of RFCA was a critical aspect of achieving accelerated Site closure. It provided the regulatory flexibility necessary to implement accelerated closure with a bias for action. A key development in the alignment of regulatory milestones with earned value derived from the project baseline. This ensured the regulators, the contractor, and the DOE were all working toward the same baseline and milestones, not "project" milestones and "regulatory" milestones, which has been more the norm in the DOE.

4. The use of the consultative process for decision making encouraged and enabled early, open dialogue with the regulators on cleanup plans, building trust and taking paper processes off the critical path. A key component of this was to provide the regulators with early, complete access to Site operations and documents. This allowed for alignment with the regulators on cleanup issues, which in turn translated to greater support from the regulators when engaging stakeholders and stakeholder groups on controversial cleanup issues.

5. The process of developing the action levels, standard operating procedures, and other documents was the important effort. Much detail is presented above, but it was the discussion, dialogue, and understanding that was developed that was really the most important. The lesson is to use the process, not the specific procedures or results.

6. Certain key issues at Rocky Flats, e.g., future land use and cleanup levels, requird strong stakeholder consensus for project success. For some closely-held issues, basing project approaches on community consensus (within fiscal and time constraints) may be more effective than seeking community buy-in on a pre-determined project approach.

7. When dealing with regulatory issues, openness and honesty is paramount. The heart of the consultative process was sharing information, good or bad, early and often. In return, the parties had to learn to use the information fairly and not for manipulation or advantage. This behavior took several years to institutionalize, with considerable senior management coaching, but ultimately became a powerful tool that significantly enabled the early and under budget completion of the closure.

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